

# **MODULATED BUTTON ASSEMBLY FOR AN OVERLOAD PROTECTION SWITCH**

## **BACKGROUND OF THE INVENTION**

### **1. Field of the Invention**

The present invention relates to a modulated button assembly, and more particularly to a modulated button assembly for an overload protection switch so that with the same base, numerous different buttons are able to mate with the base to form a complete button assembly to reduce manufacture cost.

### **2. Description of Related Art**

In order to prevent electrical appliance from overloading, a dual metal plate or the like is provided to the switch such that when the current passes through the switch is overloaded to cause the rise of the dual metal plate temperature, which will automatically cut off continuous power transmission to the electrical appliance and thus the electrical appliance is protected. Normally, the function of the dual metal plate is based on the heat expansion differences between the two metals of the plate and is securely received in the switch having a button assembly and a housing partially and pivotally receiving therein the button assembly. Because there are numerous different buttons available on the market, users will have to search for the suitable element to connect to the button chosen to allow the button assembly to be received in the housing, which is very troublesome and labor efficient. Furthermore, to mate with the different buttons, the manufacturers have to prepare different molds for making different bases for interconnecting the buttons and the housing of the switch. This is another

1 drawback in which manufacture cost is increased.

2 To overcome the shortcomings, the present invention tends to provide an  
3 improved modulated button assembly to mitigate the aforementioned problems.

#### 4 SUMMARY OF THE INVENTION

5 The primary objective of the present invention is to provide an improved  
6 modulated button assembly having a universal base for mating with different  
7 buttons so that the combination of the universal base is able to interconnect the  
8 buttons to the housing of a switch.

9 Another objective of the present invention is that the manufacture cost is  
10 dramatically decreased.

11 Other objects, advantages and novel features of the invention will  
12 become more apparent from the following detailed description when taken in  
13 conjunction with the accompanying drawings.

#### 14 BRIEF DESCRIPTION OF THE DRAWINGS

15 Fig. 1 is a perspective view of the button assembly of the present  
16 invention;

17 Fig. 2 is an exploded perspective view showing the base and the button  
18 mated with the base;

19 Fig. 3 is a perspective view showing that the button assembly is partially  
20 received in a housing of a switch; and

21 Fig. 4 is a schematic view showing that the base of the present invention  
22 is able to mate with different buttons.

#### 23 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

1           With reference to Figs. 1 and 2, the modulated button assembly in  
2 accordance with the present invention includes a button (10) and a base (20).

3           The button (10) has a cap (11) and two pairs of connecting plates (12)  
4 oppositely extending downward from a bottom face of the cap (11). Each  
5 connecting plate (12) is provided with a boss (13) formed on the connecting plate  
6 (12). A gap (14) is defined between two adjacent connecting plates (12).

7           The base (20) has a receiving space (21) centrally defined in the base  
8 (20), two first through holes (22) defined in a side face defining the receiving  
9 space (21) to correspond to the two bosses (13) of one pair of the connecting  
10 plates (12) of the button (10), a second through hole (23) oppositely defined  
11 relative to the side face having the two first through holes (22) to correspond to  
12 one of the bosses (13) of the other pair of connecting plates (12), an extension  
13 (24) formed on the side face of the two first through holes (22) to correspond to  
14 the gap (14) of the button (10), a protrusion (25) formed on the side face having  
15 the two first through holes (22) and a push bar (26) extending downward from a  
16 bottom of the base (20).

17          When the button assembly is to be assembled, the two bosses (13) from  
18 one pair of connecting plates (12) are inserted into the corresponding first  
19 through holes (22) and one boss (13) from the other pair of connecting plates (12)  
20 is inserted into the corresponding second through hole (13) to allow the  
21 extension (24) sandwiched between one pair of connecting plates (12) and  
22 received in the gap (14). Thus, the assembly of the button assembly is finished.

23          With reference to Fig. 3, the button assembly is combined with the

1 housing (30) to form a switch, wherein the push bar (26) is engageable with the  
2 dual metal plate (not shown) to be driven by the dual metal plate when the dual  
3 metal plate temperature is risen due to the load in the switch.

4 With reference to Fig. 4, it is noted that no matter what kinds of the  
5 button (10,40,50,60,70) may be, the base (20) constructed in accordance with the  
6 present invention is able to mate with the button (10,40,50,60,70) to form a  
7 button assembly to match the housing so as to form a switch.

8 From the foregoing description, it is appreciated that the base (20) is able  
9 to mate with different kinds of buttons (10,40,50,60,70) to form a button  
10 assembly such that the manufacture cost for the button assembly is dramatically  
11 reduced.

12 It is to be understood, however, that even though numerous  
13 characteristics and advantages of the present invention have been set forth in the  
14 foregoing description, together with details of the structure and function of the  
15 invention, the disclosure is illustrative only, and changes may be made in detail,  
16 especially in matters of shape, size, and arrangement of parts within the  
17 principles of the invention to the full extent indicated by the broad general  
18 meaning of the terms in which the appended claims are expressed.